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NOTES ON AMPHIBIANS AND REPTILES FROM EL SALVADOR

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INTRODUCTION

The collection of reptiles and amphibians that forms the basis of this report was made while I was working in El Salvador under the auspices of the Instituto Tropical de Investigaciones Cientificas and Chicago Natural History Museum during the period from February through June, 1951. Forty-three species were collected.

Our headquarters were in San Salvador, the only locality where any considerable period of time was spent. Other localities were reached by motor car, the journey and return being usually completed the same day, though some localities were visited a number of times. The trip to Miramundo, however, occupied several days.

Specimens were collected at the following localities:

San Salvador, Dept. San Salvador. Collecting was done at two places in San Salvador. One was the pleasant house with a garden where we lived for a time in the suburbs on the southern edge of the city at about 700 meters altitude. Collecting was done here in the dry season around the house and gardens and along a grassy banked stream that flowed through pastureland. The species present were:

Bufo coccifer
Bufo valliceps
Bufo marinus
Engystomops pustulosus
Leptodactylus melanonotus
Eleutherodactylus rugulosus
Rana macroglossa
Rana pipiens
Gonatodes fuscus
Sceloporus squamosus
Ameiva undulata

Observed but not collected:

Basiliscus vittatus
Sceloporus malachiticus

At the beginning of the rainy season our quarters were changed to the other edge of town to the Instituto buildings, in an area of scrubby pasture, some coffee groves and brush-grown gullies, and

many temporary ponds, at about 670 meters altitude. The species collected there were:

Oedipina salvadorensis
Bufo coccifer
Bufo valliceps
Bufo marinus
Engystomops pustulosus
Eleutherodactylus rugulosus
Eleutherodactylus rhodopis
Hyla stauferi
Hyla baudinii
Rana pipiens
Geoemyda pulcherrima incisa
Kinosternon cruentatam
Coleonyx mitratus
Basiliscus vittatus
Sceloporus squamosus
Sceloporus acanthinus
Lygosoma a. assatum
Ameiva undulata parva
Gymnophthalmus speciosus birdi
Drymobius margaritiferus occidentalis
Leptodeira rhombifera
Ninia s. sebae
Trimetopon posadasi
Tantilla armillata
Stenorrhina f. freminvillii

Observed but not collected:

Anolis sericeus
Ctenosaura similis
Iguana iguana rhinolopha
Sceloporus variabilis olloporus

A forest 6 km. north of Los Blancos, Dept. La Paz, near sea level. This patch of forest had been left in the midst of cleared fields near the coast. The trees formed an incomplete canopy and there was much underbrush. There was some indication that water accumulates during the latter part of the wet season, turning this forest into a swamp. The species present here were:

Cnemidophorus d. deppii
Ctenosaura similis
Iguana iguana rhinolopha
Sceloporus squamosus
Kinosternon cruentatum
Bufo coccifer
Leptodactylus labialis

Species seen but not collected:

Ameiva undulata parva
Basiliscus vittatus

Volcan San Salvador, Dept. La Libertad, 500–700 meters. On the north slope of the volcano was a flow of recent lava, the last of which was deposited in 1917. The older rough lava around the most recent flow supported a dry scrub forest much tangled with brush and vines. The species present were:

Anolis sericeus
Sceloporus squamosus
Ctenosaura similis
Cnemidophorus d. deppii
Oxybelis a. aeneus

Species seen but not collected:

Basiliscus vittatus

Miramundo, Dept. Santa Ana, 2,200 meters altitude. In the cloud forest at this locality collecting was done in the bromeliads;

in the litter on the floor of the forest; in a tiny rock-filled stream; and along a trail at the edge of a clearing in the cloud forest. The species present were:

Magnadigita engelhardti
Plectrohyla guatemalensis
Hyla euthysanota
Anolis heteropholidotus
Barisia moreleti salvadorensis

Laguna Ilopango, Dept. San Salvador, 400 meters altitude. Ilopango is a volcanic lake near San Salvador. The area collected in was at the point where a small stream ran through an over-pastured valley, with very scanty vegetation, down into a marshy area and out into the lake. This valley was margined by brush and coffee-grown hills cut with steep ravines. The species present were:

Bufo canaliferus
Leptodactylus melanonotus
Eleutherodactylus rugulosus
Rana pipiens
Cnemidophorus d. deppii
Ameiva undulata parva

Species seen but not collected:

Basiliscus vittatus

Laguna Apastepeque, Dept. San Vicente, 500 meters altitude. This is a small volcanic lake with brush and pasture on the sides of the crater that encloses the lake. A grassy bank some 10 yards wide along part of the lake shore was also visited. The species present were:

Basiliscus vittatus
Ameiva undulata parva

Species observed but not collected:

Ctenosaura similis
Rana pipiens
Iguana iguana rhinolopha

Barranco del Sisimico, near San Vicente, Dept. San Vicente, 350 meters altitude. This is a deep, rocky gully with a stream in the bottom and, in places, densely wooded sides. The species present were:

Bufo valliceps
Anolis lemurinus bourgeaei
Sceloporus variabilis olloporus

Montecristo Mine, north of San Miguel, Dept. La Union, 250 meters altitude. The mine was in an area of low, dense brush, dry pasture, and corn fields. A single *Kinosternon cruentatum* was collected in an artificially created and maintained pond.

Los Blancos, Dept. La Paz, near sea level. Los Blancos was a small island and settlement on the coast separated from the mainland by a shallow channel. It was visited by Dr. Sharat K.

Roy, Chief Curator of the Department of Geology, Chicago Natural History Museum, who collected a single specimen of *Oxybelis acuminatus*.

Volcan Santa Ana, Dept. Santa Ana, 2,400 meters altitude. The volcano was capped with cloud forest and this peak was also visited by Dr. Roy, who collected the only pit-viper obtained by our party.

I wish to thank Dr. Norman Hartweg, Dr. L. C. Stuart, Mr. C. H. Pope, and Dr. Hobart Smith for examining the material belonging to groups in which they have a special interest. Dr. Karl P. Schmidt, Chief Curater Emeritus of the Department of Zoology, has aided me with advice throughout the preparation of this report, as well as by his assistance in corresponding with Dr. Mertens. I also wish to thank the personnel of Chicago Natural History Museum, of the Instituto Tropical de Investigaciones Cientificas, and the many others who made this work possible.

Annotated List of Species

SALAMANDERS

Magnadigita engelhardti Schmidt

Oedipus engelhardti Schmidt, 1936, Field Mus. Nat. Hist., Zool. Ser., **20**: 135–166—Volcan Atitlan, 7,000 ft. above Olas de Moca, Solola, Guatemala.

Magnadigita engelhardti Taylor, 1944, Univ. Kansas Sci. Bull., **30**, pt. 1, no. 12, pp. 189–232.

Three specimens were collected from Miramundo, one on February 24, at 2,000 meters altitude.

These specimens agree well with the type and paratypes. They are uniform dorsally, like most of the paratypes from the type locality at Volcan Atitlan and unlike the striped form more common from the more northern Volcan Tajumulco. Ventrally one specimen shows a break-up of the yellow-orange coloration into scattered blotches. This condition is approached in certain paratypes but not to this extent. Also the El Salvador series is slightly stockier and has a proportionately wider head.

These specimens were taken from the leaf axils of bromeliads in trees in the cloud forest.

Oedipina salvadorensis Rand

Oedipina salvadorensis Rand, 1952, Nat. Hist. Misc., Chi. Acad. Sci., **98**: 1–3—San Salvador, El Salvador, 670 meters altitude.

Three specimens were collected, all from the same locality. The diagnosis and description are repeated below.

Diagnosis.—An *Oedipina* with 19 costal grooves, 13 costal folds between appressed limbs; tail not constricted at base; snout longer than eye; and about 6 vomerine teeth.

Description of type.—Form elongate; length of head contained about 6½ times in that of body, width of head 11 times; 19 costal grooves, 13 costal folds between tips of appressed toes; no basal constriction of tail.

Snout a blunt oval as seen from above, strongly flattened, longer than eye; upper jaw projecting beyond the lower; groove from posterior border of eye extending to gular fold, which meets a vertical groove behind angle of jaw; a groove from angle of jaw to vertical groove; vertical groove extending onto throat, meeting the sides of an arched groove; nuchal grooves from ends of gular fold almost meeting at mid-dorsal line; eyelids fitting under a flap of skin posteriorly.

Fingers and toes fused rather than webbed, tips of the middle two fingers and middle three toes free, bluntly pointed; order of length of fingers 3–2–4–1, of toes 3–4–2–5–1.

Maxillary teeth present; 3 premaxillary teeth not piercing lip; vomerine teeth about 6 on each side, beginning behind choanae and curving in and back, narrowly separated; paravomerine teeth in one patch separated from vomerine teeth by about three times the diameter of choanae.

Color.—Black above, venter strongly pigmented but lighter than back; a whitish spot behind insertion of hind leg; limbs above lighter than back, above and below with a brownish tinge; mental area also with a brownish tinge.

Measurements.—Snout to anterior angle of vent 33 mm.; snout to gular fold 5; width of head 3; arm 4; leg 5; total length 70.

Variation.—The three specimens agree closely in color and form. The most important characters are tabulated below.

Specimen	Costal grooves	Costal folds	Vomerine teeth	Premax. teeth	Head length	Snout-vent length	Arm length	Leg length
Type								
CNHM					mm.	mm.	mm.	mm.
65030	19	13	about 6	3	5	33	4	5
Paratypes								
CNHM								
65028	19	13	5–6	3	5	34	4	5
65029	19	13	5–?	1	5	32	4	5

Remarks.—North of Costa Rica this genus was known only from the Atlantic slope of Central America and Mexico until Dr. L. C. Stuart described *ignea* and *taylori* from the Pacific side of Guatemala (January 29, 1952). My description of *salvadorensis* appeared February 9, 1952. *Oedipina salvadorensis* agrees with *taylori* in having the vomerine teeth reduced in number, and *taylori* is from the section of Guatemala adjacent to El Salvador; the Salvadorean specimens appear to have somewhat longer legs, with 13 instead of 15 costal grooves between the appressed toes. *O. ignea* has 10 vomerine teeth, with leg-length comparable to that in *salvadorensis*. Feeling that additional material is necessary to clarify the relations of these Pacific coastal plain forms, I have let *salvadorensis* stand.

All three specimens of *salvadorensis* were collected in a deep brush-grown gully running through scrub pasture on the outskirts of the city of San Salvador. They were found under rocks half buried in the damp earth at the bottom of this gully during the dry season when practically the whole country was arid.

FROGS

Engystomops pustulosus Cope

Paludicola pustulosa Cope, 1864, Proc. Acad. Nat. Sci. Phila., **16**: 180—Grandia on the River Truando, Colombia.

Engystomops pustulosus Boulenger, 1882, Cat. Batr. Sal. Brit. Mus., p. 275.

Fourteen specimens were collected at San Salvador, one of these at an altitude of 700 meters on April 20, 1951, the others at 670 meters during the period from April 29 through June 19, 1951.

The specimens in this series match Kellogg's description (1932) except that the ridge-bordered, diamond-shaped area in the interscapular region, which he refers to as constant, often lacks the two posterior ridges and is sometimes completely absent. Eleven specimens of the series have numerous round tubercles dorsally with no definite arrangement except in the interscapular region. Three others have the dorsal tubercles arranged in longitudinal rows and also have longitudinal dermal ridges. This gives these frogs quite a different appearance dorsally, but the ventral pattern of all the specimens is very similar. All these frogs were found breeding in the same ponds and no difference could be noted in the call.

Engystomops pustulosus was common in the scrub pasture and the brush-grown gullies at San Salvador, during the rainy season. During the day it was found under logs and leaf litter on the ground.

Several individuals were found in an unused sewer and many fell into a pit in the bottom of a pastured gully.

These frogs called at night from all the temporary ponds as well as from any puddle or wheel rut where water collected. They called with a whimpering "Zummnng" followed by a click or chuck; this last was often omitted, especially when a chorus was beginning or resuming a call. The frogs called while sitting at the water's edge, floating in the water with forelegs on the bank or on a blade of grass, or floating in open water. When a call was given the vocal sac was inflated to a fat sausage shape wider than the frog was long. Between calls the air was forced back into the body cavity so that the body was much swollen. The change in buoyancy resulting from this shift of air caused the frog to change position while calling: when a call was being given the inflated vocal sac raised the head and lowered the hind legs and body; between calls, when the body was inflated, the legs came to the surface and the head was lowered close to the water.

The eggs were part of a foam mass that varied greatly in size. Apparently the mass was made up of more than one lot, the male remaining in one place and breeding with successive females. The egg masses were formed of a white foam, which stiffened on the outside while remaining wet inside. They were found in temporary ponds, or at their edges, stranded by the daily fluctuation in pond size. The egg masses were usually attached to vegetation. One nest was found stuck to the side of a log 15 inches above the ground and at least a foot above what seemed to be the highest possible water level.

The young larvae as well as the eggs were light in color and inconspicuous in the foam nest. The larvae in two cases left the foam nests on the third day.

Two males in breeding condition were disgorged by a *Leptoderia rhombifera*.

It is interesting to note that while some males, to judge from the nests, apparently mated with more than one female in a night, many males did not mate, as there were never as many nests in the morning as there had been males calling on the previous evening.

Eleutherodactylus rhodopis Cope

Lithodytes rhodopis Cope, 1866, Proc. Acad. Nat. Sci. Phila., **18**: 323—Veracruz, Orizaba and Cordoba; restricted to vicinity of Orizaba.

Eleutherodactylus rhodopis Noble, 1918, Bull. Amer. Mus. Nat. Hist., **38**: 327, pl. 16, fig. 1.

Two specimens were collected on March 9, 1951, at San Salvador, 670 meters altitude.

These specimens were taken with *Eleutherodactylus rugulosus* under stones and leaf litter at the bottom of a brush-grown gully running through pasture.

Eleutherodactylus rugulosus Cope

Liyla rugulosa Cope, 1869, Proc. Amer. Phil. Soc., **11**: 160—Pacific region of the Isthmus of Tehuantepec, Mexico.

Eleutherodactylus rugulosus Kellogg, U. S. Nat. Mus. Bull., **160**: 95–96, 116–117, 1932.

Eight specimens were collected: six at San Salvador, one on April 30, 1951, at 700 meters altitude, the other five on March 9, 1951, at 670 meters altitude; two at Laguna Ilopango, on May 25, 1951, at 400 meters altitude.

All these specimens were juveniles and agree well with the smaller individuals of a series of *Eleutherodactylus rugulosus* from Guatemala.

Six of these frogs were found under stones and leaf litter in the bottoms of damp gullies grown with brush. The others were collected at night on the edge of a small grass-margined stream running through a pasture.

Leptodactylus labialis Cope

Cystignathus labialis Cope, 1877, Proc. Amer. Phil. Soc., **17**: 90—southern Mexico, "probably part of Sumichrast's Mexican Collection."

Leptodactylus labialis Brocchi, 1881, Miss. Sci. Mex., pt. 3, sec. 2, livr. 1, p. 5, fig. 1.

Two specimens were collected at a forest 6 km. north of Los Blancos, near sea level, one on May 31, the other on June 20, 1951.

One of these frogs was seen hopping along a road shoulder near the edge of a forest during the day; perhaps I had frightened it from a nearby brush pile. The other was found under a piece of bark on the floor of this same forest. When uncovered it jumped and tried to hide again among bits of bark. Its black and tan pattern made it difficult to see among the flakes of bark and dead leaves on the dark forest floor. There is some indication that later on, during the rainy season, water accumulates in this forest, turning it into a temporary swamp.

Leptodactylus melanonotus Hallowell

Cystignathus melanonotus Hallowell, 1860, Proc. Acad. Nat. Sci. Phila., **12**: 485—Nicaragua.

Leptodactylus melanonotus Brocchi, 1881, Miss. Sci. Mex., pt. 3, sec. 2, livr. 1, p. 20.

Sixteen specimens were collected: eleven on March 7, 1951, at Laguna Ilopango, 400 meters altitude; five at San Salvador, 700 meters altitude, two of these on March 7, one on April 20, and two on April 29, 1951. These specimens agree with the description given by Kellogg (1932) except that a white stripe below the eye is not evident.

From February 19, when we arrived, to April 30, when we left this area, this frog was heard calling during both day and night from the concealment of overhanging grass along a small stream running through a pasture at San Salvador. Though the calling males remained hidden, other individuals were seen at night on the banks of this stream. From April 28 to 30 transforming tadpoles of this species were seen along the stream. On March 7 the low herbaceous vegetation along the marshy edge of Laguna Ilopango contained many transforming and recently transformed frogs, while the adults were heard calling nearby. The call of this species is a sharp "click-click, click-click," which called to mind a piece of tin being bent sharply back and forth.

Bufo canaliferus Cope

Bufo canaliferus Cope, 1877, Proc. Amer. Phil. Soc., **17**: 85–86—"West Tehuantepec," Oaxaca, Mexico.

One specimen was collected on May 25, 1951, at Laguna Ilopango, 400 meters altitude.

This specimen was collected on the damp earth under a stone at the bottom of a narrow, wooded gully.

Bufo coccifer Cope

Bufo coccifer Cope, 1866, Proc. Acad. Nat. Sci. Phila., **18**: 130–131—Arriba, Costa Rica.

Eleven specimens were collected: ten at San Salvador, five of these during the period from April 12 through April 29, 1951, at 700 meters altitude, and five during the period from May 1 through June 10, 1951, at 670 meters altitude; one was collected at a forest edge 6 km. north of Los Blancos, near sea level, on May 31, 1951.

These specimens agree well with the description given by Kellogg (1932), though there is some variation in the shape of the parotoids, and the parietal crest, though small, is distinct in all adults in this series.

During the rainy season this toad was commonly seen hopping about the dirt roads in the scrub pasture at San Salvador at night. It called from the shallow, grass-grown areas of the temporary ponds. At the very beginning of the rainy season I found it calling from the puddles of water in a garden that was being watered heavily enough to allow the growing of water cress. It was not calling from the nearby ponds where *Bufo marinus* was breeding. The call of *Bufo coccifer* is a high and shrill, almost insect-like trill. One male was found grasping a rough stone approximately the size of a large female. The eggs are laid in cable-like strands that are wound about the stems of the submerged grass.

Bufo marinus Linnaeus

[*Rana*] *marina* Linnaeus, 1758, Syst. Nat., ed. 10, **1**: 211—America.
Bufo marinus Schneider, 1799, Hist. Amphib., Fasc. 1, pp. 219–222.

Nine specimens were collected at San Salvador, six at 700 meters altitude during the period from February 19 through April 20, 1951, and three at 670 meters altitude during the period from June 1 through June 12, 1952.

Bufo marinus was both common and conspicuous. In San Salvador it was seen hopping around gardens in the evening and found under boards and other ground cover during the day.

Mertens (1952d) reports that he found this toad breeding from July through the end of October, during the rainy season, in El Salvador. Wright and Wright (1949), summarizing the published breeding records for this species, include every month of the year, though November–January are listed only as possible breeding periods. Breder (1946) definitely records breeding in January in Panama. Despite this range of dates, reported breeding correlates with the rainy season. Pope (1917) reports that in Bermuda the breeding season varies as much as five months from year to year, depending on when the rains come.

During my stay in El Salvador I found these toads calling and breeding during the last part of the dry season. Dry season breeding is not unknown among toads. Alexander (1933) reports that *Bufo melanostictus* at Bangkok breeds throughout the year, one of the two periods of greatest activity being "the hottest and driest season of the year." My notes may be the first record of dry season breeding for *B. marinus*.

I spent from February 19 to April 30 in the suburbs of San Salvador. Throughout this period *Bufo marinus* was heard calling

periodically from a nearby stream. Pairs in amplexus were noted during two periods and newly transformed toads were seen on three occasions. This period corresponds to the end of the dry season, for the rains that usually come in the middle of April were delayed until after the first of May, though light showers occurred on two evenings and several afternoons during the last part of April.

The half mile of stream where this activity was observed ran swiftly through a gully about 5 feet wide over a rocky bottom with many boulders and then out into a flat grassy public park, where it flowed slowly over a muddy bottom from 6 to 10 feet wide. The toads were concentrated into two areas, each about 50 yards long, one on each section of the stream. The group in the lower section was visited on a number of occasions during this time and the toads present were counted. The results are tabulated below. Here the stream had low, grassy banks and though the water was kept muddy during the day by cows and by women washing clothes it cleared at night. This, with the large size of the toads and their relative indifference to my light, made a quite accurate count possible.

Date March	Time	Number of toads	Number of pairs	Notes
7	7:30–9:30	25	0	No calling
8	7:30–9:30	27	1	No calling
9	7:30–9:30	35	0	Calling
10	7:30–9:30	54	3	No calling
11	7:30–9:30	56	2	No calling
12	7:30–9:30	64	3	No calling
13	7:30–9:30	41	1	No calling
23	8:15–8:45	50	0	Calling
25	8:30–9:00	36	0	No calling, transforming toads
26	8:00–8:30	26	0	One male calling
27	8:15–8:45	28	0	No calling
April				
4	8:30–9:00	20	0	No calling
6	8:30–9:00	28	0	No calling
8	8:30–9:00	65	0	Calling
9	8:30–9:00	67	0	Calling
10	8:30–9:00	53	0	Calling
11	8:30–9:00	35	0	Calling
12	8:30–9:00	37	0	No calling
13	8:30–9:00	55	3	Calling
14	8:30–9:00	57	1	Calling
15	8:30–9:00	51	1	Calling
18	8:30–9:00	22	0	No calling
20	8:30–9:00	60	0	Calling, transforming toads
21	8:30–9:00	44	0	Calling
22	8:30–9:00	54	0	Calling
23	8:30–9:00	64	0	Calling
28	8:30–9:00	..	..	Transforming toads

An examination of the table indicates that though toads were present along the stream throughout this period both calling and actual breeding occurred sporadically. There seems to be little pattern to the occurrence of calling. Pairs in amplexus appear to be grouped into two periods about a month apart. The sporadic occurrence of newly transformed toads supports the conclusion that breeding was not continuous. Breder (1946) records evidence of two breeding periods for this species in Panama.

It is interesting to note that the occurrence of pairs in amplexus does not seem to be correlated with the greatest activity in calling. Even when the chorus was calling many individuals did not join in. The males were very active and often travelled some feet to chase a moving toad. A male often attempted to clasp a moving pair in amplexus or a male that had been calling next to him, if the other male moved.

Though the majority of the individuals present were definitely males no attempt was made to sex each individual and consequently it is not known if the periodic breeding was due to a periodic appearance of females at the stream or to some other factor.

It is also possible that the congregation of these toads is similar to the congregation of *Bufo woodhousii fowleri* studied by Stille (1952). He reports that the toads living in the dry sand dunes along the southern edge of Lake Michigan visited the damp sand along the edge of the lake periodically to absorb moisture. The country around San Salvador during the dry season is just as dry as the Lake Michigan dune country and this may be an explanation for the presence of *Bufo marinus* along the stream when neither calling nor breeding occurs.

Bufo valliceps Wiegmann

Bufo valliceps Wiegmann, 1833, Isis, **26**: 657–659—Mexico.

Five specimens were collected: one at the Barranco del Sisimico, near San Vicente, at 350 meters altitude, on March 13, 1951; four at San Salvador, three of these at 700 meters altitude during the period from March 23 through April 12, 1951, and one at 670 meters altitude on June 18, 1951.

These specimens are similar to a series of *Bufo valliceps* from eastern Guatemala in general body form, in lacking bifid tubercles under the fourth toe, in having the first finger definitely longer than the second, in having dorso-lateral linear series of enlarged warts, and in having a light vertebral line broken by a dark Λ-shaped mark

between the parotoids. They differ in having the head ridges not as high or sharply edged or the spur onto the back as well developed, in having the linear series of warts less developed, in having the parotoids much more oval in outline, in lacking a dark bar on the head between the ridges, and in lacking a pattern on the under side.

It seems not unlikely that there is a distinct subspecies of *valliceps* on the Pacific slopes of Central America. Small specimens from southern Guatemala are apparently more like the present series than like those from the Atlantic drainage. This species of toad was not as common as either *Bufo marinus* or *Bufo coccifer* and was found only occasionally along the roads in the pasture area. It was calling from temporary ponds near the Instituto in May and June in scrub pasture, but never in large numbers. The call is a trill, as high in pitch and as rapid as that of *Bufo coccifer*, but louder and more musical.

Plectrohyla guatemalensis Brocchi

Plectrohyla guatemalensis Brocchi, 1877, Bull. Soc. Phil. Paris, 7, (1), p. 93.

Three specimens were collected on February 26, 1951, at Miramundo, 2,200 meters altitude. All three show the bifid prepollex that characterizes this species.

The one juvenile was found in the leaf axil of a bromeliad in a tree. The two adults were collected among the rocks in a tiny mountain stream.

Hyla baudinii Duméril and Bibron

Hyla baudinii Duméril and Bibron, 1841, Erp. Gén., 8: 564–565—Mexico.

Thirteen specimens were collected during the period from May 1 through June 19, 1951, at San Salvador, 670 meters altitude.

Hyla baudinii is the common tree frog in the scrub pastures and gullies at San Salvador during the wet season. During the day we found it sitting on the branches of bushes in the fence rows, once hiding in a crack in a fence post, commonly concealed under lumber piles about the buildings, and once hidden in some plant specimens in the laboratory. At night these frogs often came to our windows to catch insects attracted by the lights.

During the afternoon, particularly when there was a little rain, the frogs began to call from their diurnal hiding places. If the rain continued into the evening they moved to the temporary ponds

nearby and sang in chorus. If no rain fell, the afternoon calling died down and only a few individuals called during the evening. The call is harsh, not unlike someone sawing wood with short quick strokes, or like a quick snore. When heard in chorus the males seemed to sort themselves into pairs, calling - - -- - -, though the individual call is single - - - . In addition to the usual call the males have a clicking "chuck- chuck- chuck," which is given by a male when another male attempts to clasp him. This frog was one of the most wary and the last of a disturbed chorus to resume calling in the choruses in the scrub pasture at San Salvador. Males called while floating in the water, sitting on the bank, or perched in nearby bushes. Two pairs in amplexus were seen in the branches of a bush six feet from the edge of a pond.

One evening during a rain I counted 28 males of this species calling within and around a cement tank 10 feet square near the Instituto. This same evening I saw a female climb the side of this tank and hop past a calling male, who attempted unsuccessfully to clasp her. Then, perhaps frightened by my light, she dove into the water and swam along the tank until she was directly under a calling male, when she climbed up beside him. When she touched him he stopped calling and clasped her. After a short time the pair jumped into the tank and floated there, just touching the side.

Hyla euthysanota Kellogg

Hyla euthysanota Kellogg, 1928, Proc. Biol. Soc. Wash., **41**: 123–124—Los Esesmilos, Dept. Chalatenango, El Salvador.

Two specimens were collected on February 25 and 26, at Miramundo, 2,200 meters altitude. They agree well with the description of the type except that a dermal fold not mentioned in the description is present at the wrist. This is distinct in one specimen and less so in the other. Both specimens agree well in color with the description except that one is slaty rather than brown above and has the dorsal spotting very indistinct. Neither frog has the large dark spot posterior to the front leg and both have a white line along the upper lip.

The specimens were collected in the leaf axils of aerial bromeliads in the cloud forest.

Hyla staufferi Cope

Hyla staufferi Cope, 1865, Proc. Acad. Nat. Sci. Phila., **17**: 195—Orizaba, Veracruz, Mexico.

Six specimens were collected at San Salvador, 670 meters altitude, three on June 18 and three on June 25, 1951.

One individual began to call intermittently on several evenings in mid-June from a lumber pile near the Instituto in the middle of a scrub pasture. The call was a nasal "nannk." Several days later a small chorus began in a nearby grass-grown temporary pond. These frogs did not begin to call until almost a month and a half after the beginning of the rains, called only on evenings when there was rain and only from one small temporary pond, though there were numerous apparently identical ponds nearby with their complements of other species.

Rana macroglossa Brocchi

Rana macroglossa Brocchi, 1882, Bull. Soc. Phil. Paris, (7), 1: 177—plateau of Guatemala.

Seven specimens, six juveniles and one adult, were collected at San Salvador, 700 meters altitude, during the period from April 12 through April 29, 1951. During the latter part of the dry season, juveniles and tadpoles were common along a small, grass-banked stream flowing through pasture, but only occasional adults were seen. Transforming individuals were seen during the latter part of March and in April.

The one adult and six juveniles from El Salvador agree closely with specimens from western Guatemala and with the description of *Rana macroglossa* in Schmidt and Stuart (1941). They have the small tympanum, less than three-fourths of the diameter of the eye, the character that Stuart (1948) uses to distinguish *palmipes* from *macroglossa* in Alta Verapaz.

Stuart traced these two forms from Guatemala through Honduras, the lowland form consistently having a larger tympanum and the upland form a smaller one. Specimens in the collection of Chicago Natural History Museum show that this small tympanum form also occurs at lower levels on the Pacific slopes in Mexico, Guatemala, and El Salvador.

Rana pipiens Schreber

Rana pipiens Schreber, 1872, Der Naturf., Halle, 18: 185, pl. 4—New York and Raccoon Landing, Gloucester County, New Jersey; restricted to White Plains, New York.

Two specimens were collected at San Salvador, one on April 12, 1951, at an altitude of 700 meters, the other on May 11, 1951, at an

altitude of 670 meters. These specimens are similar except in dorsal coloration, one having numerous small dark dorsal spots while the other has about half as many larger ones.

Rana pipiens was common along the marshy inlet to Laguna Ilopango in early March. On May 26, at Laguna Apastepeque, adults were found among the dry leaves on the scrub-grown slopes some 10 yards from the shore of the lake. None were seen along the grassy shore itself. Along a small stream running through pasture at San Salvador one adult was the only individual seen during March and April, though one stretch of this stream was carefully examined. A single specimen fell into a pit near the Instituto on May 11 during the first part of the rainy season. This pit was at least three-quarters of a mile from permanent water and in a scrub pasture.

TURTLES

Kinosternon cruentatum cruentatum Duméril and Bibron

C[inosternon] cruentatum Duméril and Bibron, 1851, *in* Duméril and Duméril, Cat. Meth. Coll. Rept., p. 16—"Amér. septentr.," restricted to San Mateo del Mar, Oaxaca, by Smith and Taylor.

Kinosternon cruentatum cruentatum Wettstein, 1934, Sitzb. Akad. Wiss. Wien, math.-nat. Kl., Abth. 1, **143**: 14–15.

Three specimens were collected: one on March 16, 1951, at the Montecristo Mine north of San Miguel, at 250 meters altitude; one on June 6, 1951, at San Salvador, 670 meters altitude; and one on June 19, 1951, at a forest 6 km. north of Los Blancos, near sea level. I am indebted to Norman Hartweg for the identification of these specimens.

During the dry season one of the specimens was collected in an artificial pond in dry dense brush country. One was found during the rainy season in a temporary pond so shallow that the turtle could not submerge, at the edge of a coffee grove and at least a mile from permanent water. The third specimen was a dried shell of a juvenile found in a forest near the coast. There is some indication that this forest becomes a swamp toward the end of the wet season.

Geoemyda pulcherrima incisa Bocourt

Emys incisa Bocourt, 1868, Ann. Sci. Nat., **10**: 121—La Union, El Salvador.

Geoemyda pulcherrima incisa Wettstein, 1934, Sitzb. Akad. Wiss. Wien, math.-nat. Kl., Abth. 1, **143**: 18.

A single specimen was collected on June 6, 1951, at San Salvador, 670 meters altitude. It agrees well with the figures of the type given by Bocourt.

The specimen was found on the steps of the Instituto during an evening rain in the first part of the rainy season. The Instituto was in scrub pasture land on the outskirts of San Salvador, at least three-quarters of a mile from any permanent water.

LIZARDS

Coleonyx mitratus Peters

Brachydactylus mitratus Peters, 1863, Monatsber. Akad. Wiss. Berlin, **1863**: 41—Costa Rica.

Coleonyx mitratus Schmidt, 1928, Field Mus. Nat. Hist., Zool. Ser., **12**: 194.

One specimen was collected on May 7, 1951, at San Salvador, 670 meters altitude. It was found at night in the rainy season on a path up the side of a brush-grown gully running through pasture. This lizard's movements were more like those of a large terrestrial salamander than like those of the diurnal lizards.

Gonatodes fuscus Hallowell

Stenodactylus fuscus Hallowell, 1855, Jour. Acad. Nat. Sci. Phila., (2), **3**: 33—Nicaragua, restricted to Rama.

Gonatodes fuscus Stejneger, 1917, Proc. U. S. Nat. Mus., **53**: 264–265.

Four specimens were collected during the period March 9–26, 1951, at San Salvador, 700 meters altitude. They were found in the garage of a house in the suburbs of the city. There they retired behind and under wooden packing boxes during the day and came out to climb about on the walls at night.

In life the head of the male was bright orange and the area along the lips below and behind the eyes a bright blue.

Anolis heteropholidotus Mertens

Anolis heteropholidotus Mertens, 1952, Zool. Anz., **148**: 89—above Hacienda Los Planes, on the Miramundo, Metapan Mountains.

Three specimens were collected on March 26, 1951, at Miramundo, 2,200 meters altitude.

These lizards were found sunning themselves on low branches along a trail near the edge of a clearing in the cloud forest.

I am indebted to Dr. Robert Mertens for the identification of these specimens.

Anolis lemurinus bourgeaei Bocourt

Anolis bourgeaei Bocourt, 1873, Miss. Sci. Mex., Zool., pt. 3, sec. 1, livr. 2, pp. 76–77, pl. 15, fig. 9—Huatusco and Orizaba, Veracruz, Mexico.

Anolis lemurinus bourgeaei Smith and Taylor, 1950, Bull. U. S. Nat. Mus., **199**: 66.

One specimen was collected on March 13, 1951, at the Barranco del Sisimico near San Vicente, 350 meters altitude. It was sitting on a log on the wooded side of a deep gully.

Anolis sericeus Hallowell

Anolis sericeus Hallowell, 1856, Proc. Acad. Nat. Sci. Phila., **8**: 227–228—El Encero de Jalapa, Veracruz, Mexico.

One specimen was collected on May 29, 1951, at the 1914 lava, Volcan San Salvador, 500 meters altitude. This lizard, though not common, was more abundant than my one specimen indicates. *Anolis sericeus* was seen on the ground as well as in the low bushes and vine mats in the brush-grown gullies at San Salvador, and in the tangled dry scrub forest near the recent lava flow at the Volcan San Salvador.

Basiliscus vittatus Wiegmann

Basiliscus vittatus Wiegmann, 1828, Isis, **21**: 373—Mexico, restricted to Vera Cruz, Veracruz.

Four specimens were collected, two on May 26, 1951, at Laguna Apastepeque, 500 meters altitude, and two on June 10, 1951, at San Salvador, 670 meters altitude.

This was one of the commonest lizards in El Salvador, even coming into the city gardens. It was at home on the ground as well as in the low trees and bushes. Young individuals were found climbing about in the vine mats and low bushes. One large individual was seen clinging to a vertical stem about an inch thick, his high crest and long tail making a strange silhouette. When frightened, in addition to their rapid bipedal dashes that carry them with equal facility across land and water, the adults often climb trees.

On March 9, 1951, two *Basiliscus vittatus* were seen in mating position, one mounted above the other on the ground on the side of a brush-grown gully running through pasture. When the lizards saw me they darted off into the thick brush without separating.

Ctenosaura similis Gray

Iguana (*Ctenosaura*) *similis* Gray, 1831, *in* Griffith's Animal Kingdom, **9**, Synopsis, p. 38—restricted to Tela, Honduras.

Ctenosaura similis [*similis*] Barbour and Shreve, 1934, Occ. Pap. Boston Soc. Nat. Hist., **8**: 197.

Six specimens were collected, five during the period from May 31 to June 20 in a forest 6 km. north of Los Blancos, near sea level, and one on May 29 near the 1914 lava, Volcan San Salvador, 500 meters altitude.

This lizard was often seen along the roads at the lower altitudes in El Salvador. It was apparently more common than the green *Iguana*, though both were prized as food by the Salvadoreans. *Ctenosaura similis* was especially common on the stone fences that edge the fields and scrub forest near the new lava flow on Volcan San Salvador. Near the coast, where wire fencing was used, individuals were often seen on the trunks of large trees isolated in the middle of the fields. On one occasion three large individuals were seen on the trunk of a single tree; when disturbed they ran down the tree and disappeared into the tall grass at its foot.

Young individuals were common on the edge of the forest north of Los Blancos. Though they climbed in the vine mats and brush piles they seemed to be more terrestrial than the adults of the same species. Medium-sized individuals were very abundant on piles of scrap metal at a government automobile repair and supply center near San Miguel. These piles were in the sun and when visited in mid-morning were already hot, but the lizards did not seem to avoid the heated metal.

Iguana iguana rhinolopha Wiegmann

Iguana hypsilophus rhinolophus Wiegmann, 1834, Herp. Mex., pt. 1, pp. 44–45—Mexico, restricted to Cordoba, Veracruz.

Iguana iguana rhinolopha Van Denburgh, 1897, Proc. Acad. Nat. Sci. Phila., p. 461.

Two specimens were collected on May 21, 1951, in a forest 6 km. north of Los Blancos, near sea level. The median tubercles on the snout, though small, are distinctly visible on these two small individuals.

This species was occasionally seen along the roads but it seemed to be less common than the smaller *Ctenosaura similis*. Both species are prized as food by the Salvadoreans. At the edge of the forest north of Los Blancos juveniles of the two species were associated.

Sceloporus malachiticus malachiticus Cope

Sceloporus malachiticus Cope, 1864, Proc. Acad. Nat. Sci. Phila., p. 178—Bei Arriba, Costa Rica.

Sceloporus malachiticus malachiticus Smith, 1942, Proc. U. S. Nat. Mus., **92**: 349–395.

Four specimens were collected at San Salvador at 670 meters, and one at 700 meters. They were examined by Dr. Hobart Smith. He writes, "The El Salvador specimens resemble *acanthinus* in color, size, and importantly in having large supraoculars and usually a contact of frontal and interparietal. In other respects they resemble *m. malachiticus* (color and size fitting this also), importantly in lacking an extensive black collar, in having a lineolate pattern on the dorsal scale rows in males, a single canthal, and a very low scale count."

Mertens (1952d), on the basis of a much larger series from El Salvador, regards *Sceloporus m. acanthinus* as a synonym of *S. m. malachiticus*, and I am following his treatment here.

These lizards were common but shy and not conspicuous. The adults live on the trunks of the larger trees and occasionally on logs. They sun themselves in the early morning. When disturbed they retreat to the other side of the tree and if bothered further they hide in a hole or climb into the higher branches, where in at least one case the lizard took refuge in a hole. Though these lizards are green they were never seen on and seldom among the foliage.

The one juvenile seen was on the ground among dry leaves.

On June 22, 1951, a lizard of this species was seen on a large fallen tree trunk some 20 feet long. The afternoon was overcast, with the sun shining through at intervals. When I approached the log the lizard inflated its throat and body slightly and bobbed its head threateningly, flexing and straightening its forelegs. This showed the black and blue areas on the throat but not the belly patches. While watching this lizard I saw a smaller male appear at one end of the log and run past the big male, who gave chase for a short distance and then returned to the center of the log. The small male proceeded to the far end of the log, where he watched the big male and bobbed occasionally. The big male moved about restlessly for a few moments, bobbing before and after each change of position. He then ran part way down the log toward the small male, stopped, and inflated both neck and body to the point where his blue belly patches as well as his neck coloration were visible from the side. He then bobbed vigorously, and the small male fled around the log while the big male gave chase. Shortly the big male returned to his post in the center of the log, but whether the small male had left the log or taken refuge in some crevice or hole where the big male could or would not follow I could not determine.

On several other occasions males expanded their throats and bobbed when I approached, but never did I see one expand as fully as this one had.

Sceloporus squamosus Bocourt

Sceloporus squamosus Bocourt, 1874, Miss. Sci. Mex., pt. 3, livr. 4, pp. 212–214, pl. 18, figs. 7, 7*a–c*, pl. 19, fig. 3—environs de Guatemala et de l'Antigua, 1,500 meters.

Seven specimens were collected: four at San Salvador, two on March 24 at 700 meters altitude, and two on March 3 and June 28 at 670 meters altitude; one on June 20, 1951, at a forest 5 km. north of Los Blancos, at sea level; and two on May 29 and June 5, 1951, at the 1914 lava on Volcan San Salvador, 700 meters altitude.

Sceloporus squamosus was a common lizard in the grassy pastures and scrub-grown gullies around San Salvador, at the edge of the forest north of Los Blancos, and in the dry rocky scrub forest of the 1914 lava flow north of Volcan San Salvador. A strictly terrestrial species, it usually made no attempt to avoid capture by climbing or hiding in holes, but depended on its quick dashes to escape.

Sceloporus variabilis olloporus Smith

Sceloporus variabilis olloporus Smith, 1937, Occ. Pap. Mus. Zool. Univ. Mich., **358**: 11–13—San Juanillo, Costa Rica.

Two specimens were collected on March 13, 1951, at Barranco del Sisimico near San Vicente, 350 meters altitude.

The bright red tail conspicuous in the smaller individuals apparently fades with age, as it is much less evident in the adults.

This species was collected only at Barranco del Sisimico, where it was common on the rocky floor and heavily wooded sides of the deep gully. This terrestrial lizard took refuge among the leaves and under rocks when disturbed. One adult believed to be of this species was seen in the scrub pasture near San Salvador.

Barisia moreleti salvadorensis Schmidt

Gerrhonotus salvadorensis Schmidt, 1928, Field Mus. Nat. Hist., Zool. Ser., **12**: 196—Los Esesmiles, Dept. Chalatenango, El Salvador.

Barisia moreleti salvadorensis Tihen, 1949, Univ. Kansas Sci. Bull., **33**: 224.

Two specimens were collected on February 25 and 26, 1951, at Miramundo, 2,200 meters altitude.

These specimens agree with the original description.

This lizard was common among the grass, moss, and leaf litter along the trail at the edge of a clearing in the cloud forest, where it

lay in the sun and when disturbed darted back into the denser vegetation bordering the trail.

Ameiva undulata parva Barbour and Noble

Ameiva undulata parva Barbour and Noble, 1915, Bull. Mus. Comp. Zool., **59**: 476–477—restricted to Macantenango, Guatemala.

Ten specimens were collected: four at San Salvador, two of these on March 25, 1951, at 700 meters altitude, and two on June 10 and 17, 1951, at 670 meters altitude; three at the edge of the 1917 lava north of Volcan San Salvador, two of these on June 2 at 750 meters and one on June 15 at 500 meters; and three at San Vicente, near Laguna Apastepeque, May 26, at 500 meters.

These specimens come from within the range currently given for *A. u. parva*. However, there are certain characters that are not typical of that race. These are listed below.

These specimens have femoral pores 16 to 24, average 19.8. The second row of granules between the supraoculars and superciliaries extends the full length of the supraoculars in one specimen; reaches to half the length of the second supraocular in one specimen; to the third supraocular in three specimens; and to half the length of the third supraocular in one specimen. There is only some indication of this second row in four specimens. The row of granules between the supraoculars and median head scales extends to half of the third supraocular in nine specimens and is absent in one specimen.

The posterior nasals are separated from the prefrontals in one of these ten specimens.

This was the commonest lizard at the lower altitudes in El Salvador. It lived on the ground under comparatively light brush cover, though it was also found in forest and occasionally in coffee groves. It was replaced, in the more open areas with few shrubs, by *Cnemidophorus d. deppii*. The *Ameiva* is seldom still. It moves about continually over the leaves, apparently gleaning insects as a wood warbler does in the foliage of the trees. When pursued, these lizards sometimes took refuge in a hole in the bank, and occasionally, especially on cloudy days, one was found under a stone or a log.

Cnemidophorus deppii deppii Wiegmann

Cnemidophorus deppii Wiegmann, 1834, Herp. Mex., pt. 1, p. 29—restricted to Tehuantepec, Oaxaca.

Cnemidophorus deppii deppii Burt, 1931, Bull. U. S. Nat. Mus., **154**: 56–63.

Five specimens were collected: one from a forest 6 km. north of Los Blancos, near sea level, on May 21, 1951; four from 1917 lava, Volcan San Salvador, one on June 2, 1951, at 750 meters altitude, and the other three on June 15, 1951, at 500 meters altitude.

These specimens agree with the Tehuantepec material treated by Hartweg and Oliver (1937). The present specimens have a vertebral band little wider than the dorso-lateral stripes on the posterior part of the back in three specimens, a vertebral band as wide as two dorso-lateral stripes in one specimen and no evidence of this band in one specimen. All specimens have eight dorso-lateral lines. The number of femoral pores ranges from 15 to 19, average 16.6, which is very low for this form. However, another series of five specimens from El Salvador in the Museum has femoral pores 17–20, average 18.3, and a composite average for this whole series is 17.4, which is still low for *C. d. deppii.*

This lizard was common in the open grassy areas, where it replaces *Ameiva undulata parva.* It was common on the shores of Laguna Ilopango, on road shoulders, on overgrazed pastures and similar places. This was the species that had pushed farthest onto the new lava flow, a few individuals occurring where only lichen and a few ferns were growing. *Ameiva* and *Sceloporus* went only as far as the scrub and brush cover; *Cnemidophorus* and a rock wren were the only vertebrates seen farther out.

Gymnophthalmus speciosus birdi Stuart

Gymnophthalmus birdi Stuart, 1939, Occ. Pap. Mus. Zool. Univ. Mich., **409**: 1–3—San Geronimo, Baja Verapaz, Guatemala.

Gymnophthalmus speciosus birdi Mertens, 1952, Abh. Senck. Ges., **487**: 56.

One specimen of a *Gymnophthalmus* was collected on May 24, 1951, at San Salvador, 670 meters altitude. It was collected during the day under debris at the bottom of a brush-grown gully running through pasture.

I am indebted to Dr. Robert Mertens for his identification of this species. Dr. Mertens has also examined a complete specimen and the head of another (CNHM 10961 from San José del Sacare at 3,600 ft. alt.) and identified them as *Gymnophthalmus speciosus speciosus.*

Lygosoma assatum assatum Cope

Lampropholis assatus Cope, 1864, Proc. Acad. Nat. Sci. Phila., **16**: 179—Volcan Isalco, El Salvador.

Lygosoma assatum assatum L. C. Stuart, 1940, Occ. Pap. Mus. Zool. Univ. Mich., **421**: 12–13.

A single specimen was collected on March 15, 1951, at San Salvador, 670 meters altitude.

This specimen seems to be typical *assatum assatum*. The adpressed limbs do not overlap, the tail is striped rather than banded, there are 72 dorsal scales and 30 scales around mid-body.

The specimen was found under a pile of brush at the bottom of a scrub-grown gully that ran through a pasture. Several other skinks apparently of this species were seen in a banana plantation, where they appeared from the leaves under foot, ran a short distance, and disappeared into the leaves again.

SNAKES

Drymobius margaritiferus occidentalis Bocourt

Drymobius margaritiferus occidentalis Bocourt, 1890, Miss. Sci. Mex., pt. 3, livr. 12, p. 718—near Volcan Atitlan, Guatemala.

A single specimen was collected March 15, 1951, at San Salvador, 670 meters altitude. It had scale rows 17–17–15; ventrals 147; tail incomplete; supralabials 9–9; infralabials 10–10; preoculars 1–1; postoculars 2–2; snout-vent length 740 mm.

This active snake was captured in the tall grass on the brush-grown side of a gully running through a pasture. This was during the day in the dry season.

Leptodeira rhombifer Günther

Leptodira rhombifer Günther, 1872, Ann. Mag. Nat. Hist., (4), **9**: 32—Río Chisoy, near Cubulco, Guatemala.

Seven specimens were collected during the period from March 9 through June 6, 1951, at San Salvador, 670 meters altitude.

Sex	Ventrals	Caudals	Pre-oculars	Dorsal spots	Total length mm.	Snout-vent length mm.	Tail length mm.
♂	169	—	1–2	23	—	183	—
♂	165	—	1–1	28	—	440	—
♂	168	80	1–1	27	475		112
♂	165	86	2–2	25	525		143
♂	167	79	1–2	30	516		130
♀	172	—	1–1	29	—	309	—
♀	176	72	1–1	28	631		137

These specimens agree with the description of the type except that all have a mid-body dorsal scale count of 23 rather than 25;

all have 21 scale rows on the neck; five reduce to 17 rows at the anus and two to 15 rows. The upper and lower labials are uniformly 8–8 and 10–10 except in one specimen, in which they are 7–7 and 10–9; and the postoculars are uniformly 2–2. Other characters are tabulated above.

This was the commonest snake in the pastureland and brush-grown gullies near San Salvador. During the day it was found under rocks and other ground cover. At night it was encountered on the roads and paths in this pasture and brush country. Several individuals fell into a pit that had been dug at the bottom of a shallow, pastured gully.

These snakes were found at night apparently foraging for food at the temporary pond where frogs were calling. Four individuals were seen at one time in a pond about 15 feet square. The snakes were crawling about through the flooded grass in the shallower parts of the pond and swimming easily in the deeper water. When disturbed they sometimes dove and swam under water. Two of these snakes were captured and one disgorged two *Engystomops pustulosus* and the other a *Hyla baudinii*, all breeding males, and thus evidently from breeding aggregations.

Ninia sebae sebae Duméril, Bibron, and Duméril

Streptophorus sebae Duméril, Bibron, and Duméril, 1854, Erp. Gén., **7**, pt. 1, p. 515—restricted to Veracruz, Mexico.

Ninia sebae sebae Schmidt and Andrews, 1936, Field Mus. Nat. Hist., Zool. Ser., **20**: 170.

A single specimen was collected March 15, 1951, at San Salvador, 670 meters altitude. It had scale rows uniformly 19; ventrals 148; caudals 53; supralabials 7–7; infralabials 7–7; preoculars 2–2; postoculars 2–2; total length 149 mm., tail 130 mm.

This specimen was found during the day in the damp earth under a half-buried rock at the bottom of a brush-grown gully running through a pasture. This was during the dry season.

Oxybelis aeneus aeneus Wagler

Dryinus aeneus Wagler, 1824, *in* Spix, Serp. Bras., p. 12, pl. iii—"sylvis adjacentibus flumini Solimöens, prope Ega."

Oxybelis aeneus Duméril and Bibron, 1854, Erp. Gén., **7**: 819.

Oxybelis aeneus aeneus Mertens, 1952, Abh. Senck. Ges., **487**: 69.

Two specimens were collected, one on May 21, 1951, at Los Blancos, near sea level, the other on May 29, 1951, at the 1917 lava,

Volcan San Salvador, 500 meters altitude. The male specimen had ventrals 178; caudals 172; scale rows 17–17–13; supralabials 9–9; infralabials 9–9; preoculars 1–1; postoculars 2–2; total length 1146 mm., tail 473 mm. The female specimen had scale rows 17–17–13; ventrals 188; caudals 164; supralabials 10–9; infralabials 9–10; preoculars 1–1; postoculars 2–2; total length 1241 mm., tail 497 mm.

The female from Los Blancos was found by Dr. Roy during the day in a bush near the sea. The male from the Volcan San Salvador was found in the day in a tangle of vines in a thick brushy vine-grown forest at the edge of a recent lava flow, about 3 feet from the ground. It matched the vines so closely that it was not seen until it moved. When its tail was seized the snake turned and with mouth open threatened me with short lunges. The purple lining of its mouth, rimmed by the light-colored lips so displayed, gave it a menacing appearance.

The female contained five well-developed eggs when collected on March 21.

Stenorrhina freminvillii freminvillii Duméril, Bibron, and Duméril

Stenorhina freminvillii Duméril, Bibron, and Duméril, 1854, Erp. Gén., 7: 868–869, pt. 2, pl. 70, figs. 1–2—Mexico.

Stenorhina freminvillii freminvillii Smith, 1943, Proc. U. S. Nat. Mus., 93: 472.

Three specimens were captured during the period from March 25 through June 20, 1951, at San Salvador, 670 meters altitude.

These specimens have dorsal scales 17–17–17; ventrals and caudals respectively 161–40, 163–38, 169–40; supralabials 7–7; infralabials 7–7 in two cases, 7–8 in the third; preoculars 1–1, postoculars 2–2; total length and tail length respectively 146, 22; 481, 81; 540, 82.

The three specimens from El Salvador all have five distinct lines on the body. Two of the three agree with *S. f. freminvillii* in having a gray ground color while the third, a juvenile, agrees with Cope's description of *S. lactea* in having a red ground color fading to brown in alcohol. The type locality of Cope's species is La Unión, El Salvador; the original statement, "La Union, Guatemala," is evidently a *lapsus*.

Mertens (1952d) describes eight specimens from El Salvador. All have five distinct lines and one has a reddish ground color.

Cope describes *lactea* as having five lines (like my specimens). It seems evident that *lactea* must be regarded as a synonym of

freminvillii freminvillii, which thus is presumed to range from Guerrero through El Salvador on the Pacific coastal plain, as well as in the interior of the several Mexican states, as outlined by Smith and Taylor (1945). At any rate, from the evidence of my specimens, *lactea* must be a synonym of the five-lined form. The form assigned to *lactea* by Smith (1943, p. 472) does not usually have five lines. It is evident that a satisfactory subspecific arrangement of the forms of *Stenorrhina* remains to be made.

Tantilla armillata Cope

Tantilla armillata Cope, 1876, Jour. Acad. Nat. Sci. Phila., (2), **8**: 143—Cartago, Costa Rica.

One specimen was collected at San Salvador, 670 meters altitude, on May 10, 1951. This male had scale rows 15–15–15; ventrals 168; caudals 54; supralabial 7–7; infralabials 6–6; preocular 1–1; postocular 2–2; total length 204 mm., tail 143 mm.

This one individual was found on a path through a pasture about two hours after dark, on a cloudy night during the first part of the rainy season.

Trimetopon posadasi Slevin

Trimetopon posadasi Slevin, 1936, Proc. Cal. Acad. Sci., ser. 4, (4), **23**: 78–81—southern slope of Volcan Zunil, Suchitepequez, Guatemala.

One specimen was collected on May 1, 1951, at San Salvador, 670 meters altitude.

This specimen agrees with Slevin's description except that the ventral count is higher than any recorded by him, and the head of this specimen, in alcohol, is tan mottled with brown rather than dark. It has scale rows 17–17–17; ventrals 153; tail incomplete; supralabials 7–7; infralabials 8–8; preoculars 1–1; postoculars 1–1; snout–vent length 212 mm.

This specimen was encountered on the trail at the bottom of a brush-grown gully running through pastureland. It was found at night at the beginning of the rainy season.

Trimeresurus godmani Günther

Bothriechis godmani Günther, 1863, Ann. Mag. Nat. Hist., (3), **12**: 364–365, pl. 6, fig. G—Totonicapán, Guatemala.

One specimen was collected by Dr. Sharat K. Roy on June 17, 1951, near the crater of the Volcan Santa Ana, 2,400 meters altitude.

This male specimen had scale rows 21–21–17; ventrals about 141; caudals 27; supralabials 9–9; infralabials 11–11; total length 292 mm., tail 134 mm.

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